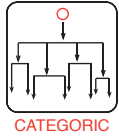INTENTIONAL

CATEGORIC

ANALYTIC

EXPLORATIVE

ABDUCTIVE

SYNTHETIC

REFLECTIVE

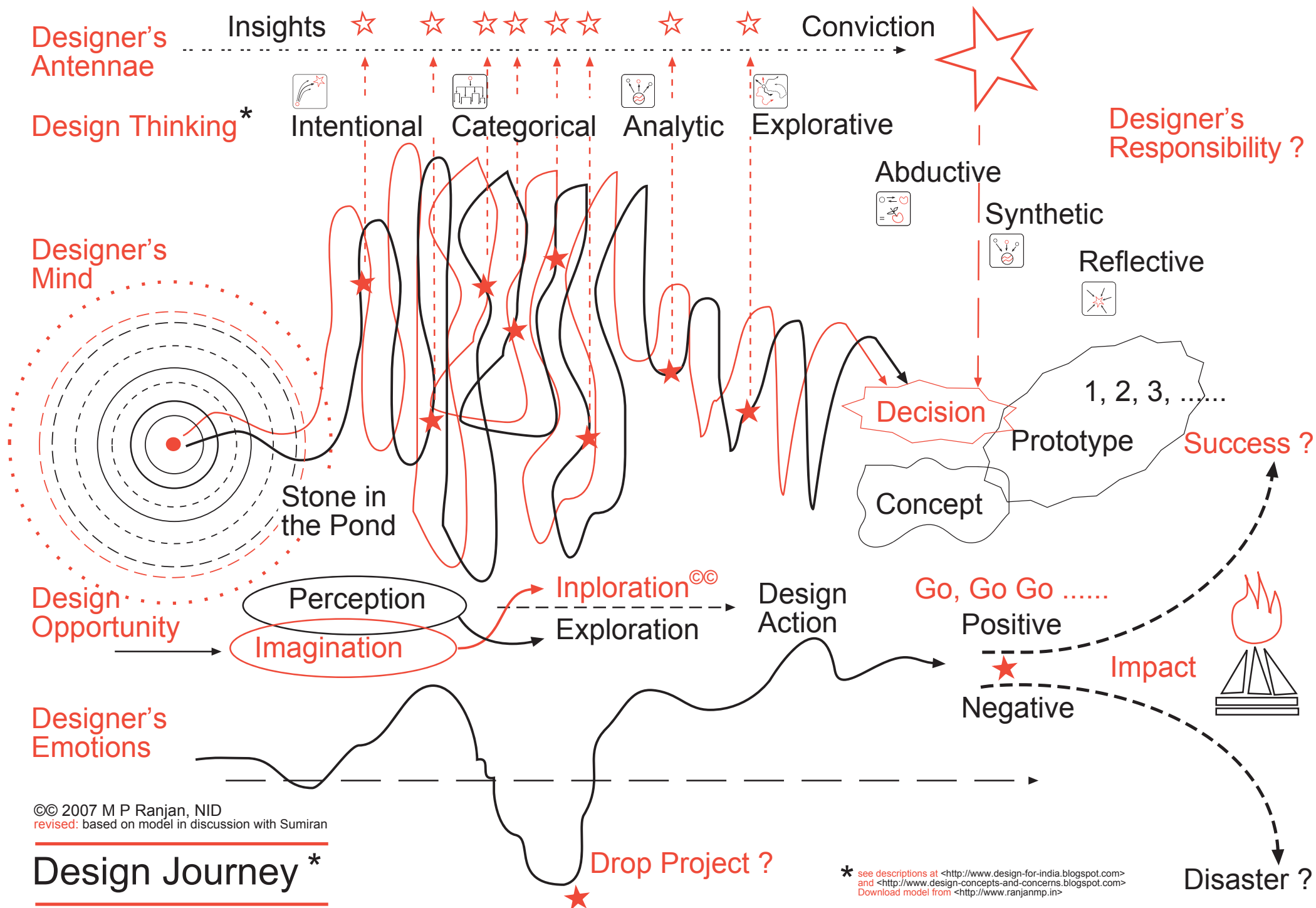# Design Journey:
Styles and modes of thoughts and actions in design

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Designer's Antennae

Insights ☆ ☆ ☆☆ ☆☆ ☆ ☆ Conviction

Design Thinking* Intentional Categorical Analytic Explorative

Designer's Responsibility ?

Abductive Synthetic Reflective

Designer's Mind

Stone in the Pond

Decision

1, 2, 3, ...

Prototype Success ?

Concept

Design Opportunity

Perception

Imagination

Inploration©© Exploration

Design Action

Go, Go Go ...... Positive

Impact

Negative

Designer's Emotions

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revised: based on model in discussion with Sumiran

Design Journey *

Drop Project ?

* see descriptions at <http://www.design-for-india.blogspot.com>
and <http://www.design-concepts-and-concerns.blogspot.com>
Download model from <http://www.ranjanmp.in>

Disaster ?

Design Journey: Styles and modes of thoughts and actions in design

The **Design Journey** starts in the mind and in the senses with the first **perception** of an interesting relationship and pattern that is triggered like the *"stone in the pond"* metaphor suggests. The ripples that are generated by the impact of the first sensations start a flow of excitement and this results in a dual process of **exploration and inploration**, an outward looking and pattern seeking behavior as well as an inward looking insight seeking behavior, both working in tandem.

Exploration is much like that of an explorer wandering in an unknown territory and the search and research is done with a high degree of motivation seeking insights and nuggets of knowledge with all the curiosity and motivation that drives such a search for new knowledge.

The inward journey which I call *"inploration"*│ is not just made up of a string of images being manipulated in the mind but these include numerous sensory inputs and information that is drawn from all the sensory sources of touch, smell, taste and feel as well as being informed by memory and prior knowledge that is made available in a **non-verbal mode**, with deep feeling and sensitivity.

Each surge of exploration is accompanied by a corresponding set of inplorations and these together produce a number of insights that are gathered and held in what I call the designers antennae, a collective phrase for the reservoir of sensory and imaginary information that collectively leads to produce a degree of conviction in the direction and content of the design journey. The **nature of design thinking** goes through a variety of phases and these thinking styles and modes would change according to the stage in the particular design journey that is being undertaken.

These **modes of thought** can be iterative and the designer is usually quite comfortable with a great deal of ambiguity that would need to be faced all through this kind of exploration and articulation. Starting with **clarifying intentions** through some pretty focused and also **fuzzy explorations** using intentional thinking the design journey would progress to the **establishment of categories** and a degree of order in the understanding of the design space. This would be done by repeated bouts of **brainstorming and categorization** till a suitable **framework for the structure** of the design space is **developed and modeled**.

This process is not straight forward but could be like a meandering stream that flows through the terrain of the **design landscape** exploring the context and the trends are gleaned to inform further action in the form of tentative and later more definite **insights** that would feed into the designers **convictions** about the nature of the **design opportunity**. A variety of approaches are explored and these would be tested periodically at both the **macro as well as the micro** level of detail. The macro would inform the designer of the viability of the approach while the micro details would provide approaches to the numerous possibilities that would be available in the choice of materials, structure, form and performance attributes that could be taken up for further refinement at the stage of taking firm decisions.

A number of **analytical tools** could be adopted by the designer and these would be typically drawn for a host of **disciplines and fields of human knowledge** and depending on the nature of the task the knowledge could be from any domain that is found relevant and usually there us no hard and fast boundary for what would be considered a valid field to be included in such a journey. Access is important and the **constraints** of cost, access, ability of the designer and his team would usually determine what is included and what is excluded in the scope of the design journey. These explorations and inplorations would continue till the designer feels comfortable with the **quality of the concepts** or when the deadline for decision draws near when in a **creative leap** of motivated **imagination** a number of **concepts** are offered for examination and subsequent **testing and evaluation**.

This is done through a unique set of **thought patterns** that move from **explorative and generative** in which many alternatives are thrown up and this is followed by rapid and deliberate **combinatorial explorations** which tend to produce a situation for the **incubation** of new and interesting patters in a creative leap of **imagination and expression**.

All through these explorations numerous **external representations** are produced and set aside, rarely **documented**, but all of these produce traces in the mind that are rich with insights and these move quite explicitly form being **abstract** to being increasingly **tangible** in their form and treatment. For instance early expressions may take the form of **doodless** and later ones in the form of more **explicit diagrams** and even **three dimensional expressions** which too would move from **soft models** to a more **hard models** with defined contours and attributes. Cascading **decisions** are taken all along this journey and the early decisions are usually **strategic in nature** while the later decisions

The Design Journey

are of a more **tactical nature** and would deal with numerous details that would need to be resolved to make the concept fit the context which will be in constant review. However once the **design action** is taken in a **reflexive space** the act is done and it is usually out of the hands of the designer and only the **consequences** would be attributable to the designer and the **final outcome** could be either **success or even disaster** if the context were to change dramatically with the designer having little control on these outcomes.

While all these explorations are in progress the **designers emotions** too would go through a roller-coaster ride with all its associated ups and downs, and at some stage even an extreme low in **confidence and conviction** which could lead to the project itself being dropped or delayed by being set aside till the circumstance or opportunity were to change for the better.

This can be a very lonely journey even when one works in a team unless there is a good deal of **external representation** the various team members would have no access to the **designers imagination** and therefore would not be able to share in the **associated convictions** that the design thinker would have generated at any particular stage of the design journey. The **impact of the design outcome** is compared

to the **effect of a well managed fire**, being beneficial, however if the factors are out of control the results could be a disaster, but the **designer would still be responsible** for the consequences and this can be quite painful indeed.

In the review of the numerous decisions the design journey would involve **evaluative thoughts** that are **reflective in nature** and **decision making is by judgment** and not just by the accumulation of facts and evidence that would be used to justify a particular decision. The **compositions** that are offered in design are one in many options and there are no correct answers and it is the **judgment call of the designer** that is valued in most cases although many clients would insist on the use of many systematic decision tools even if they have a limited relevance.

Notes & Key Concepts

Design Journey
"stone in the pond"
exploration and inploration
Exploration
"inploration"
non-verbal mode

nature of design thinking
modes of thought
clarifying intentions
fuzzy explorations
establishment of categories
brainstorming and categorization
framework for the structure
developed and modeled

design landscape
insights
convictions
design opportunity
macro as well as the micro
analytical tools

disciplines
fields of human knowledge
constraints
quality of the concepts
creative leap
imagination
concepts
testing and evaluation

thought patterns
explorative and generative
combinatorial explorations
incubation
imagination and expression
external representations
documented

abstract
tangible
doodless
explicit diagrams
three dimensional expressions
soft models
hard models
decisions
strategic in nature
tactical nature
design action

reflexive space
consequences
success or even disaster
confidence and conviction
external representation

designers imagination
associated convictions
impact of the design outcome

effect of a well managed fire
designer would still be responsible

evaluative thoughts
reflective in nature
decision making by judgment
judgment call of the designer

The Design Journey

Design Thinking: What is it and how do we introduce it into India schools?

Design thinking and action are carried out under a variety of thinking styles and modes, each used at an appropriate stage or in dealing with a particular nature of task that is associated with that stage. In the design process these are not necessarily sequential and these modes of thought may flow from one to another quite freely as the mind and the corresponding actions in the design space wander along the design journey while switching from one mode to another and often returning to a particular mode that is best suited to handle the mental and affective action that would be required at that particular stage.

Let us examine each one in a little more detail. Each of these can be developed by the creation of appropriate assignments and some of the classic basic design assignments deal with the focused development of several of these abilities in a manner in which these can be applied to real life situations once the processes are internalized and assimilated in a sensitive manner.

1. Intentional thoughts & actions
2. Categorical thoughts & actions
3. Analytic thoughts & actions
4. Explorative thoughts & actions
5. Abductive thoughts & actions
6. Synthetic thoughts & actions
7. Reflective thoughts & actions

1. Intentional Thoughts & Actions:
Intentional thinking is used to set goals and directions and these are driven by insights and convictions that could have been formed over a lifetime of exposure and experience or in some cases through a flash of insight. These thoughts are layered by a sense of motivation and could be informed by a particular ideology or philosophy and in some cases these motivations could be latent and not available at the conscious level unless the individual or group probes them with the use of reflective thoughts and makes visible the sources of these motivations.

The perception of a need which is usually layered by an associated imagination gives rise to a fuzzy notion of a design opportunity which is "seen or sensed" in the form of "something can be done" or "something needs to be done" feeling which is sensed only by the individual having these thoughts and it would remain so until it is articulated in some form of expression which is either verbal as in an exclamation or statement, visual as in a doodle or a sketch or even a three dimensional model or it could be affective as in a gesture or bodily expression of hand-waving or a more choreographed expression of a dance movement or theatre performance which could be symbolic, metaphoric or iconic in nature. From this fuzzy beginning the sense of the design opportunity grows like a seed to become a more mature expression that is associated with a better understanding of the domain in which the particular expression would be located. A variety of models could be used to explore the boundaries of the design opportunity and these boundaries are not immediately apparent but are discovered in the process of the journey as an outcome of the insights and explorations.

2. Categorical Thoughts & Actions:
Categorical thinking is used to explore and organize the various attributes and features of the design opportunity as well as the context in which the opportunity exists. Brainstorming and classification are key processes that are employed to bring structure to the design situation and this too is developed over a number of iterations and clarity would emerge only when the structure is discovered and made coherent.

The classification process can reveal what is known as well as indicate what is still unknown about the particular design opportunity since the organized structure can be subjected to critique and analysis by the individual designer as well as others who are consulted as part of the design process. This discovery of the known and familiar and the gleaning of the regions of ignorance is an important part of finding a direction for further research as the design explorations move forward.

These explorations take place in the real world context and are therefore open to a number of constraints such as access to resources and knowledge, availability of financial resources as well as material and infrastructural resources that may be essential to carry out any direct experiments and trials which may help throw light on the number of questions that would pop up in the designers mind from time to time as serious research questions that would need to be answered.

In this stage of the journey the design research may throw several serious research questions, which would set the agenda for research in a number of fields of human knowledge and across a number of disciplines, which may be pertinent to the task on hand. Many new explorations may be initiated in a search for a direction or an answer to a particular question. Some explorations are playfully executed and the insights would be saved in the memory bank for future use in an application or an exploration situation.

3. Analytic Thoughts & Actions:
A huge amount of data is usually generated through the design journey and these would need to be organized by categorization as

well as mapped into models that would help reveal new and useful relationships through a process of juxtaposition and analysis. Numerous tools of analysis may be adopted to deal with a variety of kinds of information types.

Material data would be analysed from point of view of suitability and from their structural or functional viability, cost and price data would be examined from a point of economic viability, formal and semantic data would be examined from the point of view of cultural and social acceptability and other attributes would all need to be examined across all the pertinent parameters using tools and processes that would be appropriate for each data type and by using one that is suitable in each context.

Designers borrow heavily from all branches of human knowledge and they learn to use these borrowed tools to carry out several systematic explorations and analysis. They also learn to use experts from the respective fields if time and budgets permit the involvement of such experts. However they do find great difficulty in defining the analytic tasks with a degree of clarity required to be able to outsource these tasks since the process of analysis is also used to bring clarity to the boundaries of the task itself and it is therefore very difficult to define what kind of analysis

would be required before-hand in most cases when the task is new or the field has not been explored earlier.

Due to this difficulty we would many times see designers struggling with difficult tasks outside their areas of competence since they just cannot be delegated in an easy manner due to the complexity of such a delegation. Designers are now learning to work in teams and to build teams that could include the requisite variety, which in turn would be able to cope with the particular complexity of the task at hand.

4. Explorative Thoughts & Actions: Many design stages take on the form of an expedition into the unknown and would therefore need to be nurtured in a similar manner in an open ended approach by way of supportive administrative and benevolent patronage. This spirit of experimentation that is broadly defined needs to be nurtured and is often open to serendipitous discoveries, which are at the heart of such design exploration.

To some this may seem like meaningless play but it is a very critical and productive part of a design journey. This kind of search is quite focused but it is just as unpredictable in many of its facets. However the experienced designer is usually quite adept at breaking away

from the known paths and is usually open to look out for the unusual and the surprising outcomes of these explorations and develops a kind of sensitivity that helps isolate very useful attributes and insights that are both subtle as well as critical for the resolution of the task at hand.

Such explorations may be repetitive and across many scales of action, both at the macro level as well as the micro level of detailing when a number of alternatives are examined and each of the discovered directions contribute to the building of conviction in strategic as well as tactical levels which are much needed in making the numerous decisions that cascade through a typical design journey, some are revisited a number of times from a slightly different angle each time. These can recur at a number of stages of a design journey but at each stage we can see a forward movement from very abstract expressions to more and more tangible and realistic expressions, from doodles to more explicit articulations and back to doodles again but at another level of exploration or dealing with another aspect of the design situation.

5. Abductive Thoughts & Actions: The design journey is characterized by a kind of projective approach where the designer has a favorite hypothesis and the explorations are aimed at validating or giving shape to

these hopeful or wishful dreams. This is quite characteristic of the design journey since besides inductive and deductive reasoning the designer is adept at projecting desirable attributes and exploring forms and structural alternatives that can meet these projected situations.

This kind of abductive thinking is again repeatedly adopted to resolve several different parts of a system as well as the numerous details that may form part of the whole design situation.

6. Synthetic Thoughts & Actions: Dealing with parts and wholes are an integral part of the design journey just as it is necessary to be able to journey from the general to the particular and back again a number of times while the particular design offering is being explored and articulated. The research and explorations bring into focus a very large number of explorations and alternatives but the designer is open to keep some of these as insights that would fall in place in one swift move which could resolve a huge number of variables when the design situation is seen from a birds eye view in a flash of inspiration that resolves all the variables and produces a wholesome offering that can be called a design concept.

The design concept has a huge number of attributes but these are

all captured in one single expression or model and this particular model would then influence the further decision-making moves which would be adopted as the design journey progresses.

This is a process of synthesis and is usually achieved through an act of visualization, which produces an external model that captures the particular set of attributes that make the character of that specific concept. Parts are no longer seen as appendages of the whole but the design offering is seen in its totality and this would include the tangible, visible as well as the invisible attributes that get embedded in a particular concept to satisfy the original intensions of the designer and the other stake-holders as well. This synthesis could take place in a number of stages and in each a number of alternate concepts would emerge and these would need to be critically appreciated and evaluated through individual as well as collective process adopted by the extended team, the society and the culture in which the particular design offering is being made.

7. Reflective Thoughts & Actions:

The evaluative processes and tools are usually both subjective as well as objective in nature. Numerous attributes are accepted or dismissed by subjective criteria of likes and dislikes while there are other criteria that would have measurable attributes such as desirable cost, strength and performance attributes, and functional boundaries where specific tools and evaluative processes would be used. In some cases law and statutory regulations that are applicable may require this and the design team would be compelled to adopt these as well as maintain a systematic documentation of these actions for future review on demand or as stipulated by the law.

However some of the choices cannot be explained but these could be justified by the feelings and sense of judgment of the designer and in many cases the clients would defer judgment of such nature to the designer. These could be aesthetic attributes, strategic attributes that are decided on the basis on vision and only time will tell if the decision that was taken is one that would lead to success or failure in the context in which the design is launched.

The designer has little on no control of the context within which the design action is carried out and the success or failure of the design would depend on the vision of the design team and the stakeholders associated in the decision making process. Once a design is manifested in a society or a culture it has a life of its own and all the reflexive qualities of any action in an intelligent space come into play and competition and responses from other thinking and acting players can cause the further success or failure of the particular design action. Thoughts and the convictions carried by the designer and the team get manifested in a particular set of offerings and these in turn would create ripples in the pond of the context by the other players responding in a reflexive manner, each driven with their own thoughts, beliefs and competition induced actions.

Systems theory and the Fire Metaphor: Design effect is therefore compared to the system of the Fire Metaphor where the result over time could be either benevolent or disastrous. A full description of the Fire Metaphor can be seen at this link. These thought processes are a natural ability of us humans having used it ever since the actual use of fire in an intentional manner way back over two million years ago. Long before humans understood fire or even explained it in any explicit manner it was used as evidence suggests creating campfires to ward of other animals.

The phylogenetic history of the design journey would show us the stages of the evolution of the human species along with the creation of its artifacts and social and cultural infrastructure. However this design driven journey is yet to be written and when it is we will surely have a new view of human evolution as well as a clearer vision of how we can go forward from here into the future by the use of design. Much work needs to be done to get this kind of thinking back into our schools which seem to have lost these in the huge variety of disciplines which are fiercely protected by each of the expert practitioners and their communities in the belief that this kind of general ability to create is not a valid form of education and I do believe that this will have to change. Where do we begin!

Key resources and thought leaders:
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